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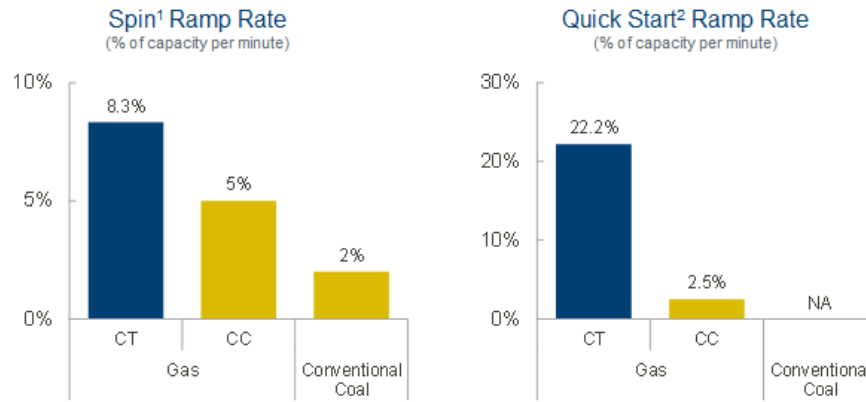
Has Michigan, or have other jurisdictions, incentivized flexible, fast-ramping non-renewable generation as a part of or a complement to the renewable standard? Why or why not?

Although not a part of a renewable standard, the importance of fast ramping resources to assist with balancing a system in time of need is widely known. To date, most of our peaking plants and fast ramping plants have been assumed to be a part of the system, or taken for granted. However, as Michigan plans its future energy it needs to recognize the ability and attributes of its power plants to respond to changing supply resources or loads when needed. *Appendix aa* demonstrates the fast ramping capabilities for natural gas. This is a clear benefit of this generation resource. As an added value, it is important to note the environmental benefits of natural gas in helping to move our generating fleet to fewer emissions (*Appendix bb*) which is often a goal of many states like Michigan. Both the fast-ramping attributes and reduced emissions of natural gas make it an integral fuel source to be a part of Michigan's future generation portfolio.

Appendix aa and Appendix bb are found on page 2.

Appendix aa

Reliability: Natural Gas Turbines Can Ramp Up Quicker Than Other Resources



CT: Simple Cycle Combustion Turbine

CC: Combined Cycle

¹Spinning ramp rates reflect the rate at which a unit can ramp up capacity when its turbine is already spinning and synchronized with the grid.

²Quick start ramp rates reflect the rate at which a unit can ramp up when its turbine is not synchronized with the grid.

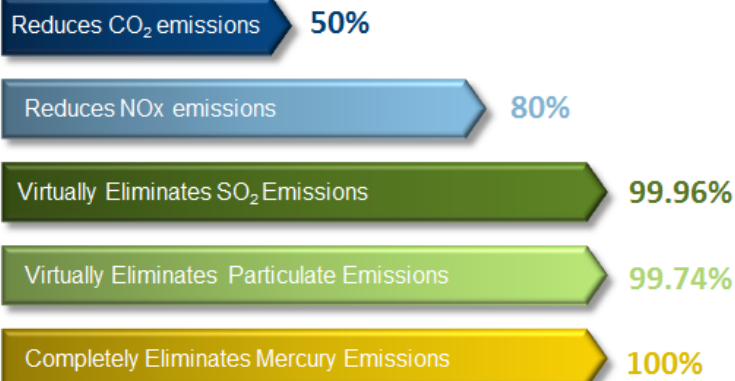
Source: Black & Veatch



Appendix bb

Cleaner For Power Generation

When used to generate electricity, natural gas burns cleaner than other fuel sources, with less pollutants and no mercury.



Find out more about Natural Gas at www.ANGA.us